The C17 Standards and Guidelines Committee
Guideline for Platelet Transfusion Thresholds for Pediatric Oncology Patients

Quick Reference Guide

Preamble Note

C17 supportive care guidelines are developed by Canadian health professional specialists using current evidence-based or best practice references. The format and content of the guidelines will change as they are reviewed and revised on a periodic basis. Care has been taken to ensure accuracy of the information. However, any physician or health professional using these guidelines will be responsible for administering transfusions and care according to their own institutional policies and standards of care.

The purpose of these guidelines is to provide clinical institutions and other organizations with a framework on which to build their own institutional protocols and to encourage standardization of protocols across regions to enhance consistency of care for patients and families.

For information regarding the methodology of this guideline development please refer to the full version of the The C17 Standards and Guidelines Committee: Guideline for Platelet Transfusion Thresholds for Pediatric Oncology Patients. If you have any questions about this guideline or any other guideline developed by the C17 Standards and Guidelines Committee please contact the C17 office at: Room 4047 RTF, 8308 - 114 Street, Edmonton, AB, Canada T6G 2E1; Phone: 780-407-1488; FAX: 780-407-8283.

Health questions

The following clinical questions guided the development of this guideline:

1. Who are the pediatric oncology patients at highest risk of bleeding with thrombocytopenia?
2. What platelet transfusion thresholds are recommended for particular clinical circumstances?
3. What complications of platelet transfusions are considered in determining the thresholds?

Recommended citation: Barnard, D; Portwine, C and Members of the C17 Standards and Guidelines Group. Guideline for platelet transfusion thresholds for pediatric hematology/oncology patients. C17 Council; Children's Cancer & Blood Disorders. Edmonton; 2009.

The individuals involved in the development of this guideline had no conflicts of interest with respect to the development of the guideline. The guideline was developed independently from any funding body other than listed below.

Summary of Recommendations

There is insufficient evidence to definitively support a specific threshold for platelet transfusion in children with cancer. The recommendations that follow are adapted from guidelines developed for adult patients. They are based on expert clinical opinion and the deliberations of the C17 Standards and Guidelines Committee.

Clinical Circumstance	Recommended Threshold	Evidence Grade*
Clinically stable pediatric patients receiving chemotherapy for leukemia	10 x10^9/L	1C
For patients with leukemia/lymphoma with signs of bleeding, high fever, hyperleucocytosis, rapid fall in platelet count, acute promyelocytic leukemia (APL), concomitant coagulation abnormality, critically ill patients, and those with impaired platelet function (including drug induced).	40 x 10^9	1C
Threshold for stable patients post stem cell transplantation (prophylactic)	10 x10^9/L	1C
Threshold for stable patients with solid tumors (prophylactic) * Transfusions at a higher level may be required for patients with bladder tumors, brain tumors or necrotic tumors.	10 x10^9/L	1C
Stable patients with chronic, stable, severe thrombocytopenia due to alloimmunization should be observed without prophylactic platelet transfusions. These patients should receive platelet transfusions with clinically significant bleeding only.	N/A	1C
Threshold for stable patients requiring a lumbar puncture. (It is recognized that some may be uncomfortable with a threshold of 20 x10^9/L because of the potentially devastating consequences of an intraspinal bleed.) **Transfusions at a higher level (>50 x 10^9) are recommended for diagnostic LP for newly diagnosed patients with leukemia to minimize the risk of a traumatic LP.**	20 x10^9/L.	2B
Threshold for stable patients requiring a major invasive procedure	40-50 x10^9/L.	1C
Threshold for patients with CNS tumors 1. Child has a CNS tumor with: - VP shunt or Ommaya reservoir – - Past history of ICH –	 30 x 10^9/L 50 x 10^9/L	2C

- An infant receiving intensive chemotherapy – - Child to undergo a neurosurgical procedure –	30×10^9/L 100×10^9/L	
2. Child has a **gross total resection** and is receiving chemo and/or radiation –	30×10^9/L	
3. Child has **residual tumor** (subtotal resection or biopsy only) and is receiving chemo and/or radiation –	30×10^9/L	
4. Child is receiving an antiangiogenesis agent – (Note - 72% of respondents accepted 30,000 as threshold)	50×10^9/L	
5. Child to undergo LP with past history of CNS tumor –	50×10^9/L	

*I would put actual citation here.

Implementation considerations

The guideline will have been circulated to the seventeen Canadian centres providing tertiary pediatric hematology/oncology care for feedback prior to its finalization. The aspect most likely to present difficulty in terms of general acceptance is the threshold for lumbar puncture. Some centres will modify the recommended thresholds to accommodate patients living in more remote areas.

Acknowledgements

Funding sources

Canadian Partnership Against Cancer, Health Canada.

C17 (Council of Pediatric Hematology/ Oncology Centres across Canada)

All work produced by the C17 Standards and Guidelines Committee is editorially independent of its funding agencies.

Overview of material

Guideline release date: TBA

Status: Adapted, revised and updated

Sources: Print copies available through XXX

Electronic sources available through YYY

Adapters: C17 Standards and Guidelines Committee

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